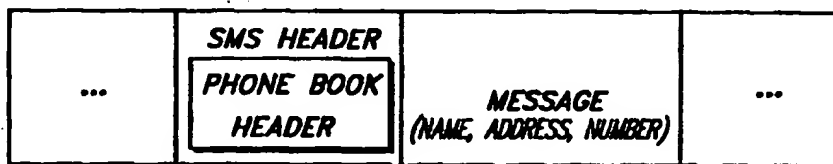




## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification <sup>6</sup> : <b>H04Q 7/22, H04M 1/274</b>		<b>A1</b>	(11) International Publication Number: <b>WO 99/29127</b>
			(43) International Publication Date: 10 June 1999 (10.06.99)
(21) International Application Number: <b>PCT/SE98/02057</b> (22) International Filing Date: 13 November 1998 (13.11.98) (30) Priority Data: 08/982,021        1 December 1997 (01.12.97)        US (71) Applicant: <b>TELEFONAKTIEBOLAGET LM ERICSSON</b> (publ) [SE/SE]; S-126 25 Stockholm (SE). (72) Inventors: <b>WILLEHADSON, Stefan</b> ; Spetsvägen 22, S-757 57 Uppsala (SE). <b>DANNE, Anders</b> ; Kastrupgatan 12, S-164 41 Kista (SE). <b>GABRIELSSON, Jan</b> ; Fjärdhundragatan 62, S-753 35 Uppsala (SE). (74) Agent: <b>ERICSSON RADIO SYSTEMS AB</b> ; Common Patent Dept., S-164 80 Stockholm (SE).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  Published <i>With international search report.</i>	

(54) Title: **ELECTRONIC BUSINESS CARD HAND-OVER**

## (57) Abstract

Method and apparatus for altering the phone book entries of a cellular phone are disclosed. In accordance with the present invention, standard short message service messages are used to transmit phonebook entries to a cellular phone. The short message service entries are modified in that the short message service header includes a tag identifying the message as a phone book entry. The mobile station receiving the short message service message reads the short message service header tag identifying the message as a phone book entry and automatically decodes the phone book fields and enters them into the standard phone book memory of the mobile phone. The present invention is also employable with standardized electronic business card technology.

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakhstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

## **ELECTRONIC BUSINESS CARD HAND-OVER**

### **FIELD OF THE INVENTION**

The invention relates to telecommunications. More  
5 particularly, this invention relates to the transmission and storage of  
telephone numbers by mobile stations.

### **BACKGROUND OF THE INVENTION**

Cellular phones have become increasingly popular. Today,  
10 these cellular telephones often contain memory maps that permit the  
user to enter information including phone numbers and notes about  
frequently called persons. Such memories may be similar to the  
ones mapped in Figure 1. There, the cellular phone is equipped  
with EEPROM containing names, phone numbers, and notes for  
15 frequently called numbers. Using this map, a user can retrieve on  
the display of their mobile phone any of the frequently called phone  
numbers by name, number, and notes.

For example, in Figure 1, the user has entered the name "Bill"  
and phone numbers for Bill's home and work at EEPROM address  
20 locations OOOOOO and OOOOA4, respectively. The use of such  
EEPROM maps for maintaining phone books and mobile phones is  
well-known. In addition, various types of derivations and  
modifications to the memory map for the mobile phone phone book  
are also well-known.

Using the mobile phone, and the memory map of Figure 1, a user can modify the phone book loaded in the mobile phone. This is usually done by manually entering a phone book mode of the mobile phone by pressing certain of the buttons on the face of the phone. Thereafter, the phone user can enter new names, phone numbers, etc. into the phone book memory map, or can change or delete data already in the map. In this way, the user can have at the user's ready-disposal, frequently dialed numbers.

Another currently-available feature of the present mobile phones is the ability to transmit and receive SMS (short message service) messages. Using this system (and similar systems like it) an originating caller can dial a phone number to leave a short alpha numeric message on the display of a recipient mobile phone. This feature has been used in the past to communicate phone numbers to a recipient mobile phone user, such as is shown in Figure 2. In that example, the recipient mobile phone user has been informed via the SMS service that "Bill has a new number," namely 555-3333. This is relevant to the mobile phone phone book memory map of Figure 1 in that the recipient user can, upon receipt of the SMS message indicating the new phone number, enter the new phone number in the memory map of Figure 1 via the data entry mode of the mobile phone of Figure 2.

Both storage of phone book entries in memory maps and the short message service are both fairly standardized for cellular phones.

Two possibilities thus exist for a phone user to receive information about a frequently called phone number and enter that phone number into the recipient phone user's mobile phone. First, the informing party can tell the recipient phone user verbally or in writing about a phone number. The recipient phone user can then write the number down, or mentally note the number, and later enter the number in the recipient phone in order to add it to the phone book memory map of Figure 1. Alternatively, the informing party can via the short message service, send information about a name, phone number, etc. to the recipient mobile phone user, who can then manually enter the name and phone number in the memory map phone book of the recipient user's mobile phone of Figure 1.

The problem with both of the above methods of getting new phone entries into the memory map of the mobile phone is that the user of the phone must manually enter the information into the phone book, regardless of how the information is received.

### **SUMMARY OF THE INVENTION**

The present invention eliminates the requirement of the user to manually enter new phone book entries into the memory map of Figure 1. This is accomplished by tagging short message service messages with a header describing the information as a new phone book entry. The mobile phone then receives the message, and based on the header, automatically adds it to the mobile phone phone book. Alternatively, after receiving the short message

service phone number with the header, the mobile phone can request the user to authorize the phone to automatically add the phone number to the mobile phone phone book.

In accordance with another embodiment of the invention,  
5 standardized electronic business cards are sent via the short message service, with an appropriate header describing the electronic business card as a phone book entry. Upon receipt of the electronic business card with the appropriate header, the mobile phone automatically adds the electronic business card information  
10 to the phone book memory map.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

Other advantages and objects of the present invention will be described in detail with reference to the accompanying drawings, in  
15 which:

FIGURE 1 is a schematic drawing of a prior art memory map for a phone book of a mobile phone;

FIGURE 2 is a prior art mobile phone displaying a short message service message;

20 FIGURE 3 is a schematic diagram of fields in a short message service message according to the prior art;

FIGURES 4 and 5 are fields in a short message service data transmission in accordance with the present invention; and

FIGURE 6 is a schematic diagram of an example cellular system employing the short message service used by the present invention.

5                    **DETAILED DESCRIPTION OF THE INVENTION**

Figure 6 illustrates a cellular system employing a short message service in accordance with the present invention. In this system, any number of mobile stations, MS1, MS2, etc., communicate with each other and with public telephone networks via wireless transmissions to a base station BS1 in their general vicinity. The base station BS1 is one base station of several such stations, BS1, BS2, etc., that communicate with and are controlled by a base station controller BSC. The base station controller communicates with a mobile switching center MSC, which switches mobile transmissions to and from mobile stations and to and from various telephony networks. The mobile switching center MSC can receive, from time to time, so-called short message service messages. These messages are alpha numeric messages that are destined for mobile stations which can display the messages on their respective displays. When a short message service message request is received by a mobile switching center MSC, the MSC transfers the request to a multimedia message exchange 12. The functionality of the multimedia message exchange 12 is known, an example of which may be seen in U.S. Patent No. 5,497,373, to Hulen, entitled "Multimedia Interface," which is incorporated herein by reference.

10  
15  
20  
25

The multimedia message exchange 12 incorporates a short message service server 14, which is specifically designed to handle short message service requests.

When a short message service message is to be delivered to a  
5 mobile station, the SMS server 14 via the multimedia message exchange 12 relays the message through the mobile switching center MSC, the base station controller BSC, the base station BS1, to the appropriate mobile station MS1. The short message assumes a traditional format that is known in the art, and is provided in  
10 simplified form in Figure 3. As shown in Figure 3, the SMS message is identified by an SMS header and an associated message to be displayed in alpha numeric format on the display of the mobile station MS1.

In accordance with the present invention, the short message  
15 service server 14 provides a short message service message to a mobile station containing a tag sent within the SMS header describing the message as a phone book entry. An example of a simplified SMS message in accordance with the present invention is shown in Figure 4 in which the SMS header includes a phone book  
20 header identifying to the mobile station that the following SMS message contains a phone book entry. In the example of Figure 4, the phone book entry is simply a name, address, and phone number, but other more or less detailed messages can be included, depending upon the type of phone book memory map (Figure 1) that  
25 is provided in the mobile station. The tag (phone book header) shown in Figure 4 instructs the mobile station receiving the message



to automatically add the message to the built-in phone book or to request the user to authorize it to do so.

Figure 7 illustrates an example embodiment of a mobile station MS1, which helps in understanding how the mobile station processes the short message service messages containing the phone book tags. The mobile station MS1 contains a transmitting part 20 for transmitting over the antenna, and a receiving part 21 for receiving communications (such as SMS messages) from the antenna. The transmitting part 20 has an associated microphone 22 for the user to speak into the mobile station MS1. Correspondingly, the receiving part 21 has an associated speaker 24 and an associated display 25. The display 25 is primarily employed by the receiving part 21 to display SMS messages in alpha numeric format. A processor 23 is also included in the mobile station MS1 for communication with the transmitting part 20 and receiving part 21. The processor 23 can receive SMS messages and decode the headers to identify phone book tags (Figure 4) associated with the present invention. Once identified, the processor 23 can decode the message of Figure 4 (which may be in a standard format such as "phone book-entry-header: <name> <address> <number>") and thereafter load the appropriate information into EEPROM 26, and specifically into the phone book map 27 corresponding to that shown in Figure 1.

In an alternative embodiment, the present invention tags short message service messages with a header identifying the message as a standardized electronic business card. Standardized electronic

business cards are known, as described in the publication "vCard and vCalendar" by Internet Mail Consortium. In particular, these electronic business cards carry directory information such as name, addresses, (business, home, mailing, parcel), telephone numbers, (home, business, fax, pager, cellular, ISDN, voice, data, video), e-mail addresses, Internet URL's, graphics, and geographic and time zone information. In accordance with the present invention, these electronic business cards can be sent in the same way as phone book entries via the SMS messaging system. As shown in Figure 5, the electronic business cards will be forwarded via the SMS system using an SMS electronic card header tag ("vCard") in the SMS header, together with an associated message containing the standardized business card information. When the mobile station MS1 receives the SMS message of Figure 5, it recognizes the business card as a standardized electronic business card by the vCard header tag and handles the entry of the business-card information into the phone book of the mobile station automatically or upon a prompt by the user.

Using the tagging of short message service messages to identify to a mobile station when new phone book entries or changes to phone book entries are being transmitted, the mobile station can automatically handle the entry of the phone book entries into the standard phone book memory of the mobile station. This is a convenient way to share and handle information on the phone by making it possible to automatically send, receive, and handle the phone book entries and electronic business cards. The present

method also is cost-effective to implement since it employs standard short message service formats with current phones (modified in accordance with the present teaching to reorganize the phone book tags, read the associated phone book data, and automatically load  
5 the data into phone book memory) and current phone book memories. No system changes are required.

While the invention has been described in connection with what is presently considered to be the most practical and preferred embodiments, it is to be understood that the invention is not to be  
10 limited to the disclosed embodiments, but on the contrary, is intended to cover various modifications and equivalent arrangements included within the spirit and scope of the appended claims.

**WHAT IS CLAIMED IS:**

1. A mobile phone, comprising:
  - a transmitter part for sending communications;
  - a receiver part for receiving communications including
  - 5 short message service messages having phone book headers and attached phone book information;
  - a memory for storing the phone book information in fields of the memory;
  - a processor for reading a received short message
  - 10 service message, recognizing the received message as a containing phone book information based on the phone book header, and automatically storing the phone book information in the received message into appropriate fields of the memory.
- 15 2.- A mobile phone according to claim 1, further including:
  - a user data entry device to prompt the processor, based on a user's manual data entry, to store other phone book
  - information other than that received by the short message service
  - 20 messages.
3. A mobile phone according to claim 1, wherein the processor stores the phone book information from the received message and the other phone book information from the user's manual data entry in the same memory fields.

4. A mobile phone, comprising:

a transmitter part for sending communications;

a receiver part for receiving communications including  
short message service messages having phone book headers and  
5 attached phone book information;

a memory for storing the phone book information in  
fields of the memory;

a processor for reading a received short message  
service message; recognizing the received message as a containing  
10 phone book information based on the phone book header,  
prompting a user to select whether the phone book information  
should be automatically stored; and if the user so selects, then  
automatically storing the phone book information in the received  
message into appropriate fields of the memory.

15 5. A mobile phone according to claim 4, further including:

a user data entry device to prompt the processor, based  
on a user's manual data entry, to store other phone book  
information other than that received by the short message service  
messages.

20 6. A mobile phone according to claim 4, wherein the  
processor stores the phone book information from the received  
message and the other phone book information from the user's  
manual data entry in the same memory fields.

7. A method of storing phone book information in a mobile phone, comprising the steps of:

receiving a short message service message containing a header identifying a following message as containing an automatic  
5 phone book entry;

reading the header and identifying the message as an automatic phone book entry based on the header;

reading the following message and parsing the automatic phone book entry into phone book information fields, and  
10 automatically storing the automatic phone book entry in a memory at memory fields corresponding to the phone book information fields of the parsed automatic phone book entry.

8. A method according to claim 7, further including:

receiving a manual phone book entry from a user input  
15 device, the manual phone book entry also containing the phone book information fields, and

storing the manual phone book entry in the same memory at the same memory fields corresponding to the phone book information fields.

20 9. A method of storing phone book information in a mobile phone, comprising the steps of:

receiving a short message service message containing a header identifying a following message as containing an automatic  
phone book entry;

reading the header and identifying the message as an automatic phone book entry based on the header;

- reading the following message and parsing the
- 5 automatic phone book entry into phone book information fields;
- prompting a user to select whether automatic storing of the phone book information fields is desired, and
- if the user selects automatic storing, then automatically storing the automatic phone book entry in a memory at memory
- 10 fields corresponding to the phone book information fields of the parsed automatic phone book entry.

10. A method of storing phone book information according to claim 9, further including

- receiving a manual phone book entry from a user input
- 15 device, the manual phone book entry also containing the phone book information fields; and
- storing the manual phone book entry in the same memory at the same memory fields corresponding to the phone book information fields.

1/3

EEPROM MAP			
ADDRESS	NAME	PHONE#	NOTE
000000	BILL	555-5555	HOME
0000A4	BILL	555-1111	WORK
00018H	KAREN	555-2222	AFTER 5PM
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

Fig.1

PRIOR ART

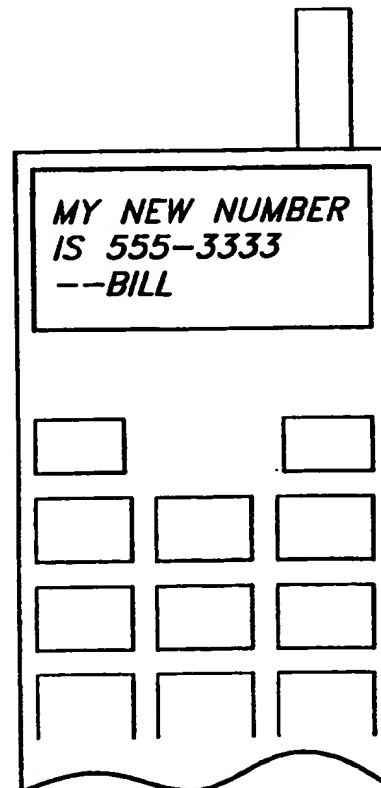


Fig.2

PRIOR ART



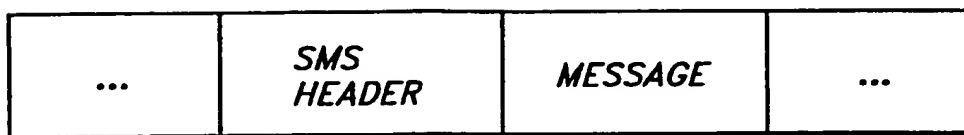


Fig. 3

PRIOR ART

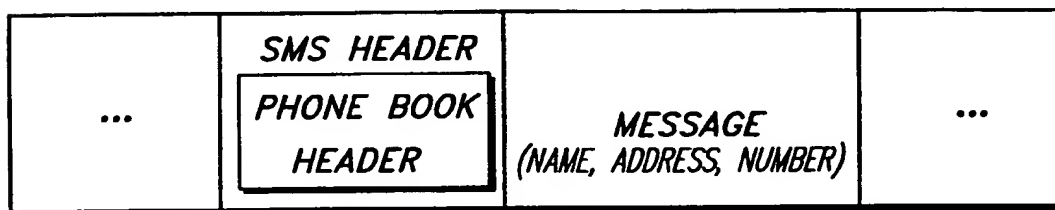


Fig. 4

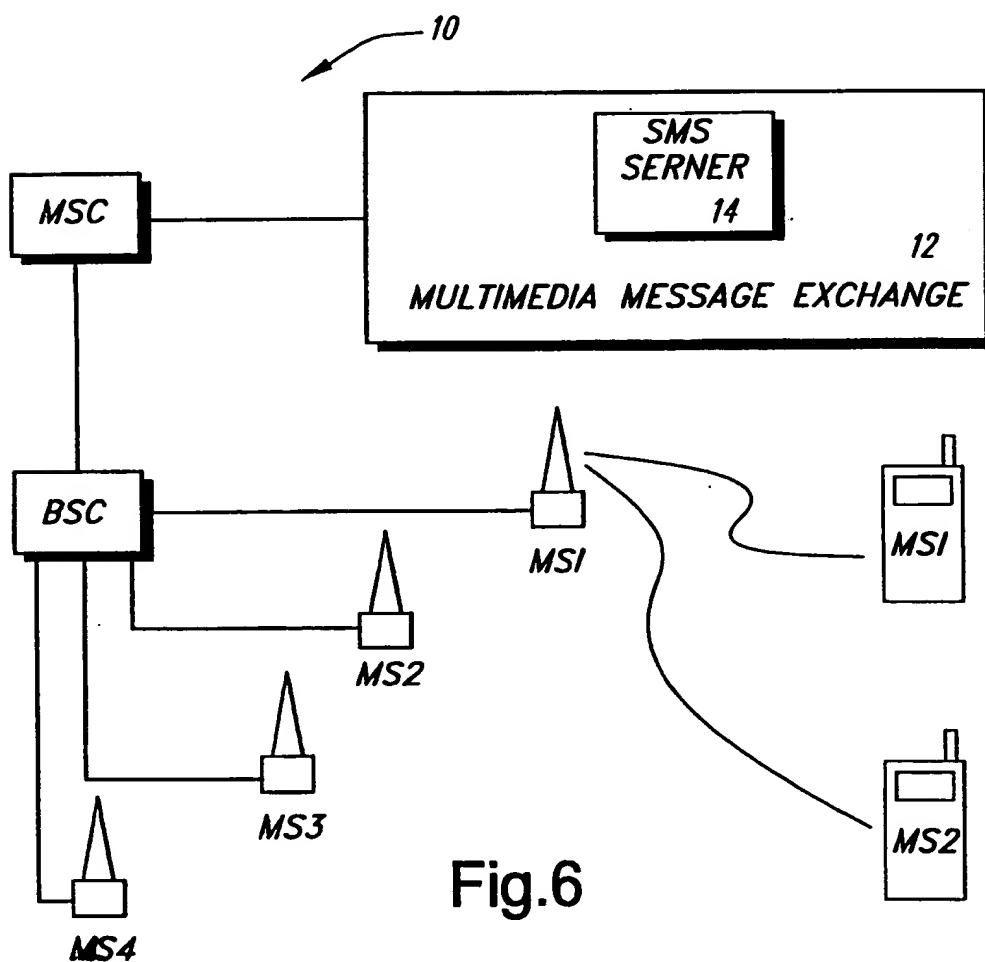


Fig. 6

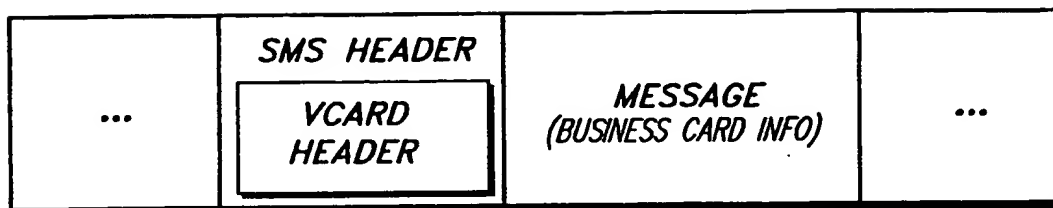


Fig.5

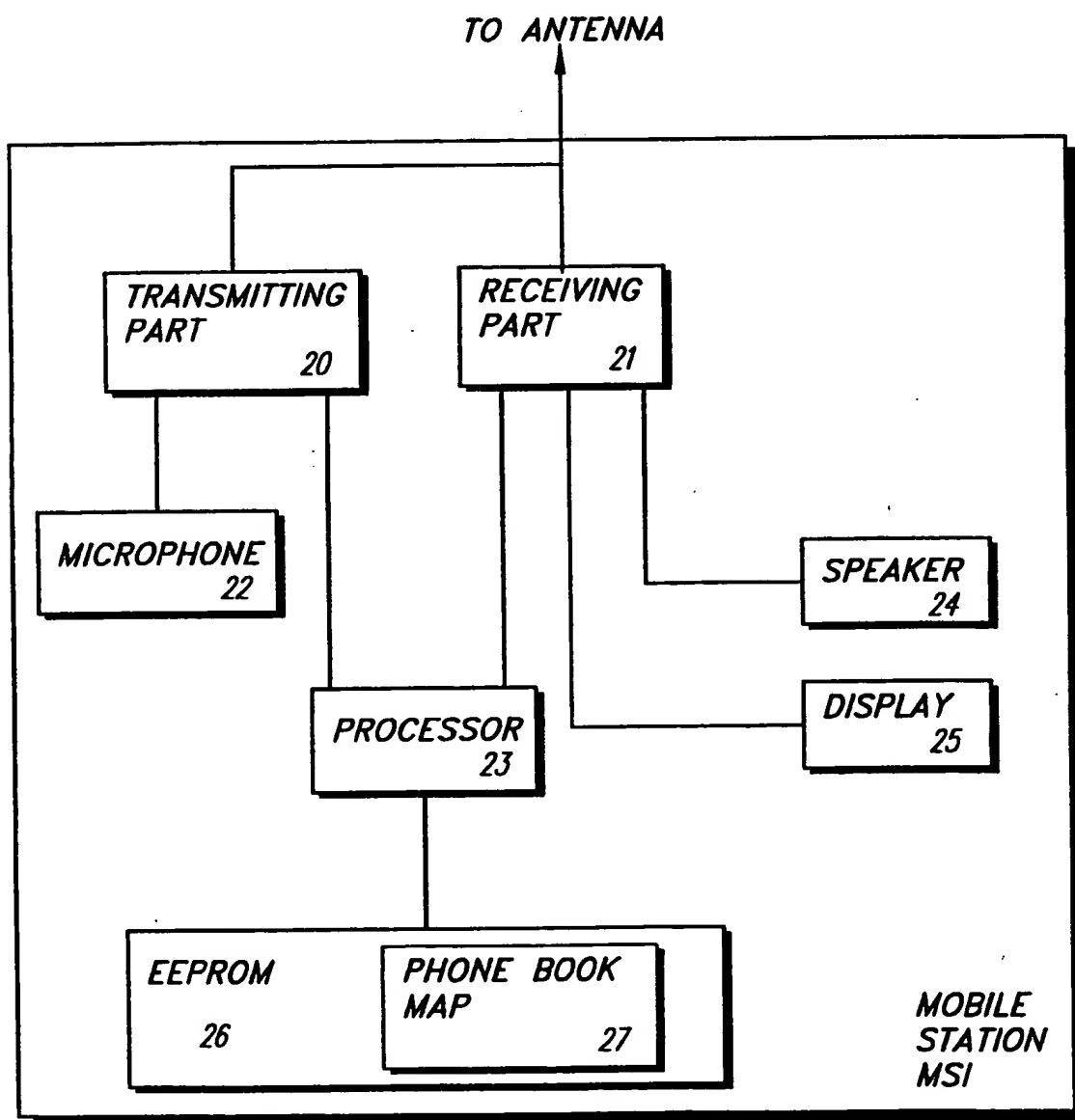


Fig.7

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/SE 98/02057

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 6 H04Q7/22 H04M1/274

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 H04M H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 94 30023 A (CELLTRACE COMMUNICATIONS LTD ;MICHAELS WAYNE DAVID (GB); TIMSON AN) 22 December 1994 see page 4, line 19 - line 21 see page 5, line 6 - line 14	1,7
X	US 5 559 862 A (BHAGAT JAI P ET AL) 24 September 1996 see column 1, line 39 - line 49	1,7
A	EP 0 458 563 A (NOKIA MOBILE PHONES LTD) 27 November 1991 see claims 1,2,4,8	1,2,4,5, 7-10
-/-		

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

24 February 1999

Date of mailing of the international search report

04/03/1999

Name and mailing address of the ISA  
European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax (+31-70) 340-3016

Authorized officer

Peeters, M

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/SE 98/02057

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 97 32439 A (DECKER PETER ;KAARTINEN KALEVI (DE); GUSTAFSSON PATRIK (FI); NOKIA) 4 September 1997 see page 9, line 14 - page 10, line 8 see page 13, line 31 - line 35 see page 27, line 20 - page 28, line 21	1,7
A	GB 2 303 025 A (SAMSUNG ELECTRONICS CO LTD) 5 February 1997 see abstract; claim 1	1,7

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/SE 98/02057

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9430023 A	22-12-1994	AT 172835 T AU 691812 B AU 6934694 A BR 9406850 A CA 2165201 A CN 1127579 A CZ 9503284 A DE 69414273 D EP 0704140 A EP 0748135 A EP 0865217 A FI 956022 A HU 73898 A JP 8511387 T NO 955079 A PL 312223 A ZA 9404242 A	15-11-1998 28-05-1998 03-01-1995 27-05-1997 22-12-1994 24-07-1996 12-06-1996 03-12-1998 03-04-1996 11-12-1996 16-09-1998 14-02-1996 28-10-1996 26-11-1996 18-01-1996 01-04-1996 15-12-1995
US 5559862 A	24-09-1996	NONE	
EP 0458563 A	27-11-1991	FI 902504 A AT 140359 T DE 69120727 D DE 69120727 T DK 458563 T ES 2090246 T	22-11-1991 15-07-1996 14-08-1996 28-11-1996 04-11-1996 16-10-1996
WO 9732439 A	04-09-1997	FI 960895 A AU 1881497 A CA 2247449 A EP 0882375 A	27-08-1997 16-09-1997 04-09-1997 09-12-1998
GB 2303025 A	05-02-1997	CN 1142149 A IT MI961305 A	05-02-1997 29-12-1997